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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,326	01/20/2006	Mitsuru Ohkubo	BY0019YP	2187
210	7590	10/11/2007	EXAMINER	
MERCK AND CO., INC P O BOX 2000 RAHWAY, NJ 07065-0907			KRISHNAN, GANAPATHY	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/565,326	Applicant(s) OHKUBO ET AL.	
	Examiner Ganapathy Krishnan	Art Unit 1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2 and 4-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2, 4-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>Aug, 2006</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

The amendment filed 7/16/2007 has been received, entered and carefully considered.

The following information provided in the amendment affects the instant application:

1. Claims 1 and 3 have been canceled.
2. New Claims 8 and 9 have been added.
3. Claims 2 and 4-7 have been amended.
4. Remarks drawn to claim objections and rejections under 35 USC 112, first and second paragraphs, double patenting and 103.

Claims 2, 4-9 are pending in the case.

#### ***Claim Objections***

The objections to claims 6-7 have been overcome by amendment.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The rejection of Claim 7 under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of treatment of colon cancer, stomach cancer, lung cancer, breast cancer and leukemia, does not reasonably provide enablement for the treatment of all other cancers as recited in claim 7 is being maintained for reasons of record.

Applicants have traversed the rejection arguing that:

Art Unit: 1623

1. 70% of all types of cervical cancer are now known to be prevented by cancer vaccine Gardasil<sup>TM</sup>.

2. Indolopyrrolocarbazole derivatives of various structural classes have been shown to inhibit cell proliferation in at least six tumor cell lines of gastric, lung, breast, colon and leukemia as taught in US Patent No. 6,703,373.

3. Given the limited number of indolopyrrolocarbazole compound encompassed by the instant claims and their in vitro and in vivo inhibitory effects the instant claim is enabled for all cancers, according to the applicant.

Applicants' arguments are not found to be persuasive.

The working examples in the instant specification are drawn to inhibitory effect of the instant compounds on stomach and lung cancer cell lines. US Patent 6,703,373, cited by the applicants shows enablement of related compounds for treatment of gastric, colon, lung and breast cancers only. These results cannot be extrapolated to treatment of all other forms of cancer as instantly claimed. Applicants haven't shown convincing evidence that treatment of all other forms of cancer as instantly claimed using the compounds as instantly claimed is enabled.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

The rejection of Claims 5-7 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention has been overcome by amendment.

The following rejection is made of record necessitated by amendment.

Art Unit: 1623

Claims 8-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 8-9 do not end with a period. It is not clear if the claims end as recited or if any additional text is intended. For the purpose of prosecution the claims are examined as ending with the last term or structure recited.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-7 rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of U.S. Patent No. 6,703,373 ('373 patent);

Claims 1-7 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 of U.S. Patent No. 5,591,842 ('842 patent);

Art Unit: 1623

Claims 1-7 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-35 of copending Application No. 10/509,061 ('061 application);

and Claims 1-7 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8 of copending Application No. 10/571,861 ('861 application), are all being maintained for reasons of record.

Applicants have requested that the above rejections be held in abeyance till allowable subject matter has been identified in pending applications.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

- Determining the scope and contents of the prior art.
- Ascertaining the differences between the prior art and the claims at issue.
- Resolving the level of ordinary skill in the pertinent art.
- Considering objective evidence present in the application indicating obviousness or nonobviousness.

Art Unit: 1623

The rejection of Claims 2 and 4-9 under 35 U.S.C. 103(a) as being unpatentable over Kojiri et al. (US Patent 6,703,373) has been dropped since the Kojiri et al patent is not a prior art under 35 USC 103(a).

The rejection of Claims 2 and 4-9 under 35 U.S.C. 103(a) as being unpatentable over Kojiri et al. (US Patent 5,591,842) is being maintained for reasons of record. Applicants have traversed the rejection for pending claims 2 and 4-7 arguing that:

The instant application claims a select class of indolopyrrolocarbazole compounds with both C1-3 alkyl bridges and on the unsubstituted heterocyclic moieties. This is in contrast to the teaching of the '842 patent and hence there is no motivation to make the compounds as instantly claimed.

Kojiri et al. disclose indolopyrrolocarbazole derivatives having the same core structure, which have hydroxyl groups on either the 1&11 carbons or the 2&10 carbons. Additionally, Kojiri et al. disclose that R<sup>1</sup> and/or R<sup>2</sup> each are independently selected from H, a lower alkyl group, or a heterocyclic group, (column 1, line 49 - column 2, line 25) wherein the heterocyclic group includes 5- or 6-membered heterocycles containing 1-4 hetero atoms, such as N, O, and S, for example, a pyrrolyl group, a furyl group, a thienyl group, or a pyridyl group (column 3, lines 22-44). Kojiri et al. further teach the use of the compounds as antitumor agents in pharmaceutical compositions (claim 4) and also discloses the effect of the compounds on leukemia, gastric cancer and colon cancer cell lines (col. 63, example 57).

What is not disclosed by Kojiri et al is the specific structures comprising the C1-3 alkyl group attached to the nitrogen on one side and to the unsubstituted pyridyl, furyl, or thienyl groups on the other side. It would have been obvious to one of ordinary skill in the art at the time

Art Unit: 1623

the invention was made that the compounds of the instant and those of Kojiri et al. are substantially overlapping and would make the compounds as instantly claimed in order to look for other compounds with the same structural core that may have better antitumor and anticancer activity and also confirm this by experiment. Since most of the structural features are taught by the prior art one of skill in the art will make compounds that have unsubstituted thienyl, furyl, 3-pyridyl and 2-pyridyl groups as instantly claimed in order to look for structurally similar compounds with better activity.

### ***Conclusion***

Claims 2 and 4-9 are rejected

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Art Unit: 1623

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ganapathy Krishnan whose telephone number is 571-272-0654. The examiner can normally be reached on 8.30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia A. Jiang can be reached on 571-272-0627. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GK

  
Shaojia A. Jiang  
Supervisory Patent Examiner  
Art Unit 1623